

Some Interesting Mollusks Dredged from the Shelf around
the Southern Coast of the Izu Peninsula, Honshu,
with Descriptions of Two New Species

By

Takashi OKUTANI* and Akihiko MATSUKUMA*

奥谷喬司*・松隈明彦*: 伊豆半島南岸からドレッジにより採
集された興味ある貝類数種について

With 31 dredgings made by the R/V *Tsukuba*, Shimoda Marine Research Center, during October-November 1981, diverse mollusks were collected. The whole catch represents the benthic molluscan fauna occupying upper shelf zone around the southeastern coast of the Izu Peninsula and a part of Sagami Bay faunule supplemented with oceanic water elements due to geography and topography of the sampling area.

This paper deals with some selected species of bivalves and gastropods worth reporting from viewpoints of systematics and distribution (range extension and rarity of occurrence). Descriptions of a new gastropod (*Pterygia japonica* n. sp.) and a new bivalve (*Wallucina izuensis* n. sp.) are included in this report. The dredged samples contain far more species of interesting mollusks that will be reported elsewhere in future.

We wish to extend our sincere thanks to Prof. H. WATANABE, the Director, and the staff of the Shimoda Marine Research Center for their understanding and warm cooperation offered to us in dredging operations. Our thanks are also due to Prof. T. HABE, Tokai University, for his kind advices for identification of species under study. Our special thanks go to Drs. M. IMAJIMA, M. TAKEDA, K. HOSHINO and T. NISHIKAWA who all participated in this sampling work and helped us from time to time.

Material

The molluscan specimens here treated were all dredged by the R/V *Tsukuba* with three types of gears that were applied for bottom conditions and depth. As sampling was non-quantitative, neither measurement of biomass nor counts of the whole animal were made. But, all molluscan specimens, either collected alive or found dead, were sorted out on board the boat and in the laboratory. The date, depth and positions relevant to sampling are shown in Table 1 and collected stations are plotted in Text-fig. 1.

* Department of Zoology, National Science Museum, Tokyo
国立科学博物館 動物研究部

Table 1. Dredging stations of the R/V *Tsukuba* during October-November, 1981.

St. No.	Date (1981)	Depth (m)		Position			
		From	To	From		To	
1	Oct. 19	17	28	34°39.7'N	138°57.0'E	34°39.6'N	138°56.9'E
2	"	29	35	39.4'	57.1'	—	
3	"	44	43	38.1'	56.1'	38.6'	56.3'
4	"	80	51	45.0'	139°02.1'	45.1'	139°02.1'
5	"	85	57	44.0'	02.2'	45.0'	01.9'
6	"	87	81	44.8'	02.0'	44.9'	02.1'
7	"	100	92	44.4'	02.0'	44.5'	01.8'
8	"	38	29	45.3'	02.1'	45.1'	02.0'
9	"	30	25	44.3'	00.9'	44.2'	00.7'
10	"	31	—	42.5'	138°59.5'	42.8'	138°59.6'
11	Nov. 9	100	93	41.0'	139°01.1'	40.7'	139°00.6'
12	"	102	92	41.0'	01.1'	40.7'	00.6'
13	"	41	40	42.9'	00.0'	42.7'	00.0'
14	"	40	39	42.8'	00.0'	42.6'	138°59.9'
15	"	60	50	41.1'	00.2'	40.9'	59.7'
16	"	60	53	41.1'	00.2'	40.9'	59.7'
17	"	70	63	39.9'	00.1'	39.6'	139°00.0'
18	"	68	60	39.9'	00.4'	39.7'	138°59.8'
19	"	110	95	39.3'	00.7'	39.1'	139°00.4'
20	Nov. 10	111	123	37.4'	138°58.8'	37.2'	138°58.9'
21	"	112	120	37.4'	58.9'	37.2'	58.9'
22	"	80	79	36.9'	57.3'	36.4'	57.2'
23	Nov. 12	61	60	37.4'	56.9'	37.2'	56.7'
24	"	64	59	37.4'	57.0'	37.2'	56.7'
25	"	57	—	38.1'	57.0'	38.0'	57.0'
26	"	106	97	41.0'	139°00.8'	40.4'	139°02.5'
27	"	91	87	40.8'	00.6'	40.6'	00.5'
28	"	106	95	41.0'	01.1'	40.6'	00.6'
29	"	59	50	41.1'	00.0'	40.9'	138°59.8'
30	"	55	50	41.1'	00.0'	40.9'	59.9'
31	"	120	102	40.9'	01.1'	40.5'	139°00.9'

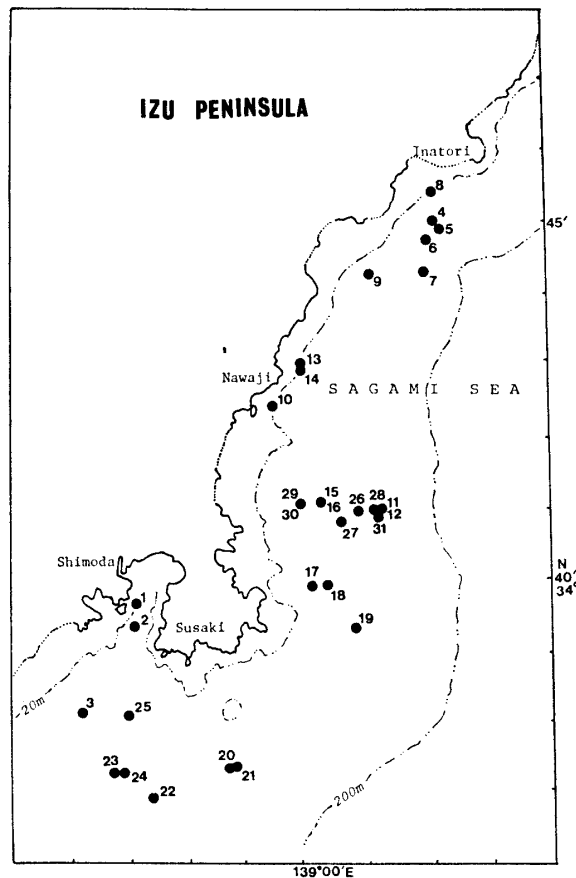
CLASS GASTROPODA

Family Trochidae

Mircogaza fulgens DALL, 1907

(Pl. 9, fig. 1)

1907 *Microgaza fulgens* DALL, *Smiths. Misc. Coll.*, 50, p. 168.1925 *Microgaza fulgens*: DALL, *Proc. U. S. Nat. Mus.*, 86, p. 20, pl. 36, figs. 2, 10.1971 *Microgaza fulgens*: KURODA *et al.*, *Sea Shells of Sagami Bay*, p. 62 (Jap.), p. 42 (Eng.), pl. 12, figs.



Text-fig. 1. Dredging stations by the R/V *Tsukuba*, October-November 1981.

15, 16.

1972 *Microgaza fulgens*: OKUTANI, *Bull. Tokai Reg. Fish. Res. Lab.*, (72), p. 76.

Locality. St. 16 (60–53 m); St. 19 (110–95 m); St. 22 (80–79 m); St. 23 (61–60 m).

Remarks. DALL (1907) first reported this species from off Goto Islands, west of Kyushu, 181 fathoms. KURODA *et al.* (1971) reported this species from 4 stations along the coast of the Miura Peninsula at depths of 52–75 m. The bathymetrical records by OKUTANI (1972) based on dredgings on isolated reefs around the Izu Islands were 95–100 m. These records agree with the present result showing that this species lives from some 50 m down to about 100 m. This species is usually sympatric with *M. ziczac* KURODA and HABE, 1971, as was so in KURODA *et al.* (1971), OKUTANI (1972) and the present sample as well.

***Tristichotrochus problematicus* KURODA & HABE, 1971**

(Pl. 9, fig. 2)

1971 *Tristichotrochus problematicus* KURODA & HABE in KURODA *et al.*, *Sea Shells of Sagami Bay*, p. 36 (Jap.), p. 25 (Eng.), pl. 10, figs. 1, 2, 7, 8.

Locality. St. 17 (73–60 m); St. 18 (68–60 m).

Remarks. As was pointed out by KURODA and HABE in the original description that this

species quite resembles *T. unicus* (DUNKER, 1860), which is one of the commonest herbivorous gastropods in intertidal rocky shores around Japanese Islands. However, this species could be separated from *T. unicus* in the following points: (1) Shell is more highly elevated, (2) coloration is much paler, (3) spiral lirae are much slenderer, (4) base is somewhat flatter, and (5) living in coarse sandy bottom in sublittoral and shelf zones, but not in intertidal hard bottom.

The present collection may be a slight range extension of this species as the specimens studied by KURODA *et al.* (1971) were mostly taken in the western coast of the Miura Peninsula, the eastern sector of Sagami Bay.

Family Lamellariidae

Lamellaria kiiensis HABE, 1944

(Pl. 9, fig. 3)

1944 *Lamellaria kiiensis* HABE, *Kairuigaku-Zasshi*, 18, p. 201, text-figs. 2–5.

1961 *Lamellaria kiiensis*: HABE, Col. Ill. Shells of Japan, vol. 2, p. 40, pl. 18, fig. 18.

1971 *Lamellaria kiiensis*: KURODA *et al.*, Sea Shells of Sagami Bay, p. 140 (Jap.), p. 92 (Eng.), pl. 108, fig. 16.

Locality. St. 3 (44–43 m).

Remarks. Although KURODA *et al.* (1971) reported 4 living specimens from the eastern sector of Sagami Bay in depths between 3–6 m and 60 m, the present sample contains only a single empty shell. Among three known species of the genus *Lamellaria* in Japan, *L. kiiensis* seems to be an only one occurring in Sagami Bay. HABE (1944) described that the soft part of this species is characterized by reddish orange color, smooth dorsum and presence of the anterior sinus. *L. utinomii* TAKI, 1972, which seems to be sympatric with *L. kiiensis* in Shirahama, Wakayama Prefecture, is characterized by warty dorsum and siphoniferous anterior body. A northern species, *L. uchidai* HABE, 1958 resembles *L. kiiensis* in body color but differs from it in having much flatter shell (HABE, 1958; HABE & ITO, 1965).

Family Muricidae

Murexsul cirrosus (HINDS, 1843)

(Pl. 9, figs. 5–6)

1843 *Murex cirrosus* HINDS, Zool. Voy. Sulphur, p. 9, pl. 3, figs. 17, 18.

1845–46 *Murex cirrosus*: REEVE, Conch. Icon., vol. 3, *Murex*, pl. 29, sp. 138.

1961 *Murexsul cirrosus*: HABE, Col. Ill. Shells of Japan, vol. 2, p. 50, pl. 25, fig. 9.

1971 *Murexsul cirrosus*: KURODA *et al.*, Sea Shells of Sagami Bay, p. 215 (Jap.), p. 141 (Eng.), pl. 41, fig. 9.

Locality. St. 5 (85–57 m); St. 12 (102–92 m); St. 13 (41–40 m); St. 14 (40–39 m); St. 18 (68–60 m); St. 27 (91–87 m); St. 28 (106–95 m); St. 31 (120–102 m).

Remarks. In referring such a frequency of positive stations shown above, it is evident that

this species is one of the commonest muricids in the surveyed area. The largest specimen measures 18.8 mm long (St. 28) and there is a wide color variation from white to dark purplish brown. The most of specimens have rather long siphonal canal than those illustrated by REEVE (1845–46), but well characterized by having 9 varices ornamented by 6 recurved, fistulous lacinae and ribbed intervarical spaces. A specimen illustrated by RADWIN and D'ATTILIO (1976, p. 156, pl. 25, fig. 13) under the genus *Murexiella* CLENCH & FARFANTE, 1945 seems to be of misidentification as their specimen is characterized by pteroid varices similar to those of ocenebrids.

One of the specimens collected from St. 24 (Pl. 9, fig. 6) may demonstrate an extremity of infraspecific variability. This particular specimen is so much different from the typical one in having pure white coloration, non-fistulous spiral ribs, non-spinous sutural ramp, strongly adaperturally curved shoulder spines and almost smooth anterior portion of the siphonal canal. In spite of such a difference, there are specimens that link the typical “spiny” form and this “smooth” form.

Family Buccinidae

Phos nigroliratus HABE, 1961

(Pl. 9, fig. 4)

1961 *Phos nigroliratum* HABE, Col. Ill. Shells of Japan, vol. 2, p. 61, app. p. 21, pl. 31, fig. 9.

1964 *Phos nigrolineatum* HABE, Shells West. Pac. Col., vol. 2, p. 95, pl. 31, fig. 9.

Locality. St. 4 (80–51 m); St. 5 (85–57 m); St. 12 (102–92 m).

Remarks. As was stated by HABE (1961) in the original description (in Japanese), this species resembles *P. laevie* KURODA & HABE, 1961 in general outline but has much coarser sculpture. *P. varicosus* GOULD, 1849 has similar sculptures (but more cancellated) but has lower spire than this species. All of the specimens in the present sample are immature with undeveloped apertural lip but are well characterized by dark brown color lirae overriding strong axial ribs. In St. 12, *P. varicosus* was sympatric.

The type locality of *P. nigroliratus* is the Sea of Enshu-Nada. Therefore, the present findings are slight range extension of this species towards the east.

Family Nassariidae

Cyllene pulchella ADAMS & REEVE, 1850

(Pl. 9, fig. 11)

1850 *Cyllene pulchella* ADAMS & REEVE, Zool. Voy. Samarang, Moll., p. 33, pl. 10, fig. 11.

1850 *Cyllene glabrata* ADAMS, Proc. Zool. Soc. Lond., p. 206.

1911 *Cyllene oblonga* SCHEPMAN, Monogr. Siboga-Exp., 49, p. 301, pl. 22, fig. 10.

1961 *Cyllene pulchella*: HABE, Col. Ill. Shells of Japan, vol. 2, p. 65, pl. 32, fig. 29.

1978 *Cyllene pulchella*: CERNOHORSKY, Trop. Pac. Mar. Shells, p. 91, pl. 28, fig. 9.

Locality. St. 25 (57 m); St. 29 (59–50 m).

Remarks. CERNOHORSKY (1978) described that this species is "rather rare". All of synonymized species were reported from the tropical Pacific, such as Borneo (ADAMS & REEVE, 1850), Molucca Sea (SCHEPMAN, 1911) etc. A specimen from Cebu, the Philippines, is also available (NSMT). HABE (1961) gave its northern limit to be the Sea of Enshu-Nada as specimens landed in Isshiki Port have been available (NSMT). This species was not reported by KURODA *et al.* (1971) from Sagami Bay but the present findings proved that this species is not so rare in the vicinity of Shimoda, at the western entrance of Sagami Bay.

***Zeuxis subtranslucidus* (SMITH, 1903)**

(Pl. 9, fig. 12)

- 1903 *Nassa subtranslucida* SMITH, Fauna & Geol. Maldive & Laccadive Arch. 2(2), p. 607, pl. 35, fig. 11 (*fide* CERNOHORSKY, 1980).
 1961 *Zeuxis hayashii* HABE, Col. Ill. Shells of Japan, vol. 2, p. 64, app. p. 23, pl. 32, fig. 15.
 1964 *Niotha hayashii*: HABE, Shells West. Pac. Col., vol. 2, p. 99, pl. 32, fig. 15.
 1971 *Zeuxis hayashii*: KURODA *et al.*, Sea Shells of Sagami Bay, p. 272 (Jap.), p. 178 (Eng.), pl. 48, figs. 21, 22.
 1980 *Nassarius subtranslucidus*: CERNOHORSKY, *Rec. Auckland Inst. Mus.*, 16, p. 180, figs. 22–26.

Locality. St. 18 (68–60 m).

Remarks. CERNOHORSKY (1980) proved that this species ranged from the Indian Ocean (Maldive Island and Sri Lanka) to Indonesia (Kai and Aru Islands, Moluccas) in the east, to N.W. Australia in the south and to Japan (the Sea of Enshu-Nada and Sagami Bay) in the north. A general impression of this species somewhat resembles that of *Niotha stigmara* (ADAMS, 1851), but this species lacks granulous sculpture and has distinctly axially ribbed and shining shell.

Family Mitridae

***Pterygia (Pterygia) japonica* n. sp.**

(Pl. 9, figs. 13–14)

- 1959 *Pterygia elongata*: KIRA, Col. Ill. Shells of Japan, (rev. ed.), p. 86, pl. 33, fig. 13 (non Y. HIRASE, 1908).
 1965 *Pterygia elongata*: KIRA, Shells West. Pac. Col., vol. 1, p. 95, pl. 34, fig. 13.

Material. A specimen collected from off Ushibuka, Amakusa, Kyushu, by Mr. T. TATESHI (Holotype specimen, NSMT-Mo 60034); a specimen collected from St. 14 (34°42.8'N, 139°00.0'E—34°42.6'N, 138°59.9'E: 40–39 m) (Paratype specimen, NSMT-Mo 60035).

Description. Shell cylindro-fusiform or bullet-shaped, rather solid. Body whorl occupies 90 (holotype) to 93 (paratype) percent of the total length. Protoconch minute, low, mamillate, vitreous, about 2 in number of turns. Teleoconch slightly inflated, with shallow, stepped sutures, 4.5 in number of turns, ornamented with two deeply impressed spiral grooves crossed with 35–40 axial ribs giving the shell a cancellated appearance. Body whorl weakly inflated with an indistinct shoulder, ornamented with 23–24 punctated, spiral grooves besides two (with one secondary) subsutural spiral grooves, which regularly spaced but slightly nar-

rowly spaced towards the neck. Surface with irregular, subtriangular, brown blotches, several in number per axial row, also forming interrupted spiral rows. Aperture narrow, white within. Outer lip smooth but with a row of spaced granules corresponding to extremities of spiral grooves of the surface along the edge. Columellar lip smooth, white in adapical half but carries 8 (holotype) to 9 (paratype) sharp columellar folds diminishing strength abapically (anteriorly). Siphonal canal shallow. Siphonal fasciole inconspicuous.

Measurements.

Holotype specimen: Shell length 22.1 mm, breadth 6.8 mm;

Paratype specimen: Shell length 18.2 mm, breadth 6.1 mm.

Distribution. Amakusa, Kyushu; off Shimoda; near the Boso Peninsula (KIRA, 1959).

Remarks. KIRA (1959) first illustrated this species under the name of *P. elongata* HIRASE, 1908, which was described from a fossil in a probable Pleistocene deposit of Kikaigashima Island, Amami Islands. However, HIRASE's fossil species has far elongated shell (H/B=37.4 versus 32.5 and 29.5 in our specimens) and almost parallel-sided body whorl which is ornamented by more crowded spiral grooves.

Four other known species of *Pterygia* in Japan, namely, *P. dactylus* (LINNAEUS, 1767), *P. crenulata* (GMELIN, 1791), *P. undulosa* (REEVE, 1844) and *P. sinensis* (REEVE, 1844), are readily separable from the present species in having short, rather obese fusiform and solid shells. Color pattern in *P. undulosa* seems to be basically the same as the present new species.

Family Volutomitridae

***Microvoluta hondana* (YOKOYAMA, 1922)**

(Pl. 9, fig. 10)

1922 *Mitra hondana* YOKOYAMA, *J. Coll. Sci. Imp. Univ. Tokyo*, 44, p. 50, pl. 2, fig. 8.

1954 *Pusia hondana*: TAKI & OYAMA, *Spec. Pap. Palaeont. Soc. Jap.*, 2, pl. 22, fig. 8.

1972 *Microvoluta hondana*: CERNOHORSKY, *Rec. Auckland Inst. Mus.*, 9, p. 215, fig. 3.

1973 *Microvoluta hondana*: OYAMA, *Spec. Pap. Palaeont. Soc. Jap.*, 17, p. 47, pl. 14, fig. 19.

Locality. St. 11 (100–93 m); St. 24 (64–59 m).

Remarks. This species was originally described from the Upper Musashino Formation, Plio-Pleistocene. The species is characterized by smooth body whorl in contrast to axially ribbed upper whorls, proportionally large penultimate whorl and brown speckles. One of two specimens identified this species by YOKOYAMA (1922, fig. 9, subsequently TAKI & OYAMA, 1954, fig. 9 and OYAMA, 1973, fig. 20) does not seem to belong this species. The specimens from St. 11 is an almost whitish specimen without any speckles.

Family Conidae

***Parviconus tuberculosus* (TOMLIN, 1937)**

(Pl. 9, figs. 15–16)

1920 *Conus tuberculatus* YOKOYAMA, *J. Coll. Sci. Imp. Univ. Tokyo*, 39, p. 34, pl. 1, figs. 15, 16 (non

DUJARDIN, 1837).

1937 *Conus tuberculosus* TOMLIN, *Proc. Malac. Soc. Lond.*, 22, p. 206.

1937 *Conus (Conasprella) tuberculosus*: TAKI, *Zool. Mag.* (Tokyo), 49, pp. 218–231, pls. 1–4.

1956 *Parviconus tuberculosus*: KURODA, *Venus*, 19, p. 84.

1961 *Parviconus tuberculosus*: HABE, Col. Ill. Shells of Japan, vol. 2, p. 74, pl. 36, fig. 16.

1971 *Parviconus tuberculosus*: KURODA *et al.*, Sea Shells of Sagami Bay, p. 378 (Jap.), p. 238 (Eng.), pl. 58, figs. 1, 2.

Locality. St. 17 (70–63 m); St. 18 (68–60 m); St. 19 (110–95 m); St. 21 (112–120 m).

Remarks. This species was first described from a Pleistocene fossil from Koshiba, Miura Peninsula. TAKI (1937) remarked that the living specimens were found by KURODA in 1935 from the collection of His Majesty the Emperor. TAKI (1937) made a thorough anatomical observations on 15 specimens taken off Jogashima Islet. According to his observation on radular tooth, it measures about 0.7 mm long and 0.1 mm in proximal diameter and is abruptly narrowing with a constriction at the distal third of the entire length. There are three barbs, small one very near the tip, another one as twice large as the first one at 120° apart therefrom, and small but sharp barb at the constriction also at 120° apart from the second one. A sharp point situated at proximal end of a shallow bay at the constriction faces against the third barb. From radular character along with shell morphology, TAKI (1937) concluded that this species could be placed in the Section *Conasprella*. This may be a quite reasonable from the radular character as THIELE (1929) described that *Conasprella* has “3 klein Wiederhaken, ohne Zahnchen, an Rande”. However, *Conasprella* has smooth spire whorls and distinctly sulcate body whorl.

On the radular character of *Parviconus* COTTON & GODFREY, 1932, COTTON (1944) described that “probably of the type seen in *tesselatus* BORN, *coronatus* BRUGUIÈRE, etc.”. However, *tesselatus* belongs to the Section *Lithoconus* of which radular tooth has denticulate edge, while the latter which belongs to the Section *Virroconus* having the radular tooth with a single barb and denticulate edge (AZUMA, 1960). Therefore, COTTON’s assumption was not correct, if *tuberculosus* still belongs to *Parviconus*. KURODA (1956) and KURODA *et al.* (1971) stated that the radular features of *C. tuberculosus* were “*Parviconus*-type”. This comment may mean that the radular tooth of this species is characteristic.

The shell characters of this species well agree with the definition by COTTON & GODFREY, such as small, thin and light shell with sharp shoulder angle, tuberculate spire whorls and paucispiral, mammillate and smooth protoconch. There is a considerable variability in color pattern but basically it is consisted of discontinuous bands and irregular clouds of brownish coloration. Background coloration is sometimes yellowish but mostly white.

The distribution records hitherto available are mostly from the neighborhood of Jogashima Islet and Kamekisho Reef in the eastern sector of Sagami Bay at depths between 43 and 150 m (with an exception between 200 and 300 m) (KURODA *et al.*, 1971). The present specimens came from the east and south off Susaki, the southwestern sector of Sagami Bay (or Sagami-Nada), at depths around 60 m to 120 m. This small cone is a shelf species living in coarse sandy bottom but was never collected from isolated submarine banks in the level depth (OKUTANI, 1972).

Family Epitoniidae

Epitonium kandai KURODA & AZUMA, 1961

(Pl. 9, fig. 8)

1961 *Epitonium kandai* KURODA & AZUMA in AZUMA, *Venus*, 21, p. 299, text-figs. 5, 9.*Locality.* St. 14 (40–39 m); St. 18 (68–60 m).

Remarks. Two specimens were found in the present collection and they measure 11.1 mm (St. 14) and 8.1 mm (St. 18) in shell length, respectively. The present species was established on the basis of specimens measuring 20.5–22.0 mm long from the Kii. The species is so close to *E. tokyoensis* KURODA, 1930 that KURODA *et al.* (1971) synonymized it. They stated that “specimens from Kii Peninsula, Honshu, and Shikoku (= *kandai*) differ from the typical form (= *tokyoensis*) from Sagami Bay in having 8 strong longitudinal ribs instead of 10”. However, KURODA & AZUMA’s original description of *E. kandai* described that it had 10 ribs on the body whorl. This may not be an essential character separating them from each other. The present specimens agree KURODA and AZUMA’s description in having “a small wavy process near the previous suture which is somewhat reflexed backward” instead of rather smooth ribs in *E. tokyoensis*. It is uncertain at present if such a minor difference is attributable to infraspecific variability or intraspecific one.

Papyriscala tenuilirata (SOWERBY, 1874)

(Pl. 9, fig. 7)

1874 *Scalaria tenuilirata* SOWERBY, *Conch. Icon.*, vol. 19, *Scalaria*, pl. 15, sp. 118.1961 *Papyriscala castanea* HABE, *Col. Ill. Shells of Japan*, vol. 2, p. 33, app. p. 11, pl. 14, fig. 22.1971 *Papyriscala tenuilirata*: KURODA *et al.*, *Sea Shells of Sagami Bay*, p. 412 (Jap.), p. 258 (Eng.), pl. 63, fig. 12.*Locality.* St. 12 (102–92 m).

Remarks. A single specimen was collected. The present specimen is far paler in color than the specimen illustrated by HABE (1961, as *castanea*), but is pale purplish in ground color. This species has hitherto been reported from Mikawa Bay (type locality of *castanea*: HABE described “Ise Bay”, but Isshiki, Aichi Prefecture, is a port in Mikawa Bay where various fishery catches from both within and outside of Ise Bay are landed) and Sagami Bay (Jogashima SW 4 km, 83–97 m deep). Therefore, the present occurrence may not be special, but such an exquisite-looking species is worth reporting.

Family Architectonicidae

Claraxis asperus (HINDS, 1844)

(Pl. 9, fig. 9)

1844 *Tornia aspera* HINDS, *Proc. Zool. Soc. Lond.*, 1844, p. 23 (*fide* KURODA *et al.*, 1971).1863 *Solarium (Torinisa) asperum*: HANLEY, *Thes. Conch.*, 3, p. 241, pl. 254, figs. 77, 78.

- 1971 *Claraxis asperus*: KURODA *et al.*, Sea Shells of Sagami Bay, p. 424 (Jap.), p. 264 (Eng.), pl. 61, figs. 13, 14.

Locality. St. 14 (40–39 m); St. 26 (106–97 m).

Remarks. The specimens found in the present sample are dead shells. The type locality of this species is the Strait of Macassar (KURODA *et al.*, 1971). KURODA *et al.* (1971) reported two living specimens from off Jogashima Islet, the eastern sector of Sagami Bay, and gave the range from Choshi City as the northern limit to Shikoku. The present findings may not be special, but the distribution records of this species have been available in a very limited number.

McNEIL's *Architectonica (Solariaxis) dilecta* (non DESHAYES, 1843) was synonymized with this species by KURODA *et al.* (1971). But, McNEIL's species seems to have a coarser sculpture than ours.

CLASS BIVALVIA

Family Glycymerididae

Glycymeris imperialis KURODA, 1934

(Pl. 10, fig. 2)

- 1934 *Glycymeris imperialis* KURODA, *Venus*, 4, pp. 201–203, pl. 4, figs. 1–5.
 1938 *Glycymeris imperialis*: TOBA & CHIBA, *ibid.*, 8, p. 170.
 1959 *Glycymeris imperialis*: KIRA, Col. Ill. Shells of Japan, rev. ed., p. 113, pl. 44, fig. 5.
 1965 *Glycymeris imperialis*: KIRA, Shells West. Pac. Col. vol. 1 (ed. 2), p. 125, pl. 45, fig. 5.
 1971 *Glycymeris imperialis*: KURODA *et al.*, Sea Shells of Sagami Bay, p. 531 (Jap.), p. 335 (Eng.), pl. 71, figs. 3–5.

Locality. St. 3 (44–43 m, empty shells); 9 (30–25 m, alive).

Remarks. *G. imperialis* closely resembles *G. rotunda* (DUNKER, 1882) in general conchological features. Although both species have deeply grooved ligamental area, distantly spaced periostracal striations and velvety periostracum with sparsely scattered and recurved barbs, they have quite different habitat and associated fauna. *G. imperialis* is one of sublittoral sandy bottom dwellers associated with *Callista pilsbryi* HABE, 1960 and *Placamen tiara* (DILLWYN, 1817), while *G. rotunda* is upper shelf sandy muddy bottom dweller associated with *Venus (Ventricoloides) foveolata* SOWERBY, 1853 and *Zeuxis siquijorensis* (ADAMS, 1852) (HORIKOSHI, 1952).

Some investigators take *G. imperialis* to be one of junior synonyms of *G. albolineata* (LISCHKE, 1872). According to the original description and figures given by LISCHKE (1872, 1874), *G. albolineata* is moderately small in size and has well-inflated shells with numerous white radial lines and characteristic punctations externally. In spite of the fact that some features and dimensions are in common with those of *G. imperialis*, the prominent punctations, closely spaced periostracal striations and variegated adductor scars are not shared with *G. imperialis*. Therefore, we prefer to accept the specific name *G. imperialis* for the present material from around Izu Peninsula, until the type material of *G. albolineata* whose depository is unknown will be critically studied.

Family Mytilidae

Amygdalum soyoae HABE, 1958

(Pl. 10, fig. 1)

1958 *Amygdalum soyoae* HABE, *Publ. Seto Mar. Biol. Lab.*, 6, pp. 261 (21), 262 (22).1971 *Amygdalum soyoae*: KURODA *et al.*, *Sea Shells of Sagami Bay*, p. 553 (Jap.), p. 351 (Eng.), pl. 73, fig. 7.*Locality.* St. 21 (112–120 m, alive).

Remarks. This species was originally described from off Goto Islands, Nagasaki Prefecture and off Toimisaki, Miyazaki Prefecture. Specimens collected alive, including the present material, show that this species is one of upper shelf dweller in sandy bottom in contrast to a kin, *A. watosoni* (SMITH, 1885) which is a cosmopolitan bathyal to abyssal dweller.

Family Pteriidae

Pterelectroma zebra (REEVE, 1857)

(Pl. 10, figs. 9–11)

1857 *Avicula zebra* REEVE, *Conch. Icon.*, vol. 10, *Avicula*, pl. 11, sp. 36.1909 *Pteria (Electroma) zebra*: LYNGE, *Zool. Res. Danish Exp. Siam*, (4), p. 46(142), pl. 2, figs. 16–18.1917 *Pteria (Electroma) zebra*: ODHNER, *Kungl. Svenska Vetensk. Handl.*, 52, pp. 16, 17, pl. 1, figs. 6–8.1932 *Pteria tomlini* PRASHAD, *Monogr. Siboga-Exp.*, 53c, pp. 94, 95, pl. 3, figs. 3–4.1933 *Pteria zebra*: KURODA, *Venus*, 4, pp. 198, 199, figs. 1–4.1951 *Pterelectroma zebra*: HABE, *Gen. of Japan. Shells*, (1), p. 64, fig. 122.1959 *Pterelectroma zebra tomlini*: KIRA, *Col. Ill. Shells of Japan*, rev. ed., p. 194, pl. 71, fig. 6.1971 *Pterelectroma zebra*: KURODA *et al.*, *Sea Shells of Sagami Bay*, p. 562 (Jap.), p. 357 (Eng.), pl. 75, figs. 7–9.1977 *Pterelectroma zebra*: HABE, *Syst. Moll. Japan*, pp. 69, 70, pl. 13, fig. 7.*Locality.* St. 15 (60–50 m, alive).

Remarks. This species is usually attached by byssus to hydrozooids sessile on rocks of 10 to 30 m deep (ODHNER, 1917; KURODA *et al.*, 1971). The present material was collected with the hydroid *Lytcarpia nigra* (NUTTING) from slightly deeper waters, at depths of 50–60 m, compared with the previous records.

Although PRASHAD (1932) distinguished *P. tomlini* from *P. zebra* by its shape, texture and coloration, the present samples from off Shimoda contain both forms. Therefore, it is clear that *P. tomlini* is conspecific with *P. zebra*.

P. zebra was originally described from Moreton Bay, southern Queensland and this species is known from Indian Ocean (Maldives and the Gulf of Manaar), Australasia and Western Pacific. The following material is deposited in the National Science Museum: Arafura Sea (NSMT-Mo 49238); Amakusa, Kyushu (Mo 58430); Sagami Bay (no number).

Family Lucinidae

Myrtea (*Notomyrtea*) *soyoae* (HABE, 1953)

(Pl. 10, fig. 3)

- 1951 *Notomyrtea soyoae* HABE, Gen. of Japan. Shells, (2), p. 134, figs. 281, 282 (name and figures only).
 1953 *Notomyrtea soyoae* HABE, *Venus*, 17, pp. 131, 132, 138, 139, figs. 8, 9.
 1964 *Notomyrtea soyoae*: HABE, Shells West. Pac. Col., vol. 2, p. 183, pl. 56, fig. 29.
 1971 *Notomyrtea soyoae*: KURODA *et al.*, Sea Shells of Sagami Bay, p. 613 (Jap.), p. 394 (Eng.), pl. 87, fig. 18.
 1977 *Myrtea* (*Notomyrtea*) *soyoae*: HABE, Syst. Moll. Japan, p. 127, pl. 23, fig. 6.

Locality. St. 7 (100–92 m, conjoined empty shells).

Remarks. The type locality is St. 504 of the S.S. *Soyo-Maru* (36°14'45"N, 133°04'45"E: 106 m) and the most of the paratypes were collected in the area extending from the west of Kyushu to the western sector of the Japan Sea. But, now it is known to occur in such a wide geographical range easterly to Sagami Bay on the Pacific coast of Honshu.

HABE (1953) and KURODA *et al.* (1971) noted that allied species, including *Notomyrtea botanica* (HEDLEY, 1918) and "*Lucina*" *fabula* REEVE, 1850, are known from seas of Australia and the Philippines.

More recently, NODA (1980) described *Goniomyrtea annulata* from the Pliocene Shinzato Formation of Kuteken, southern part of Okinawa-jima. This species apparently resembles *M. (N.) soyoae* but its outer surface is sculptured with concentric lamellated plicae. Fine radial sculptures which is characteristic in shells of *M. (N.) soyoae* are not described by him.

Wallucina izuensis n. sp.

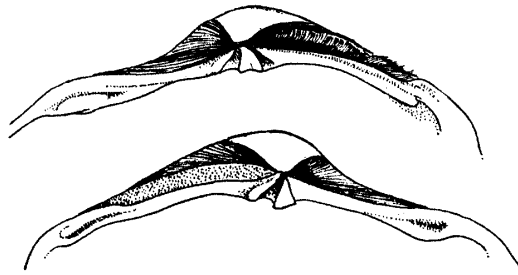
(Pl. 10, figs. 7–8; Text-fig. 2)

- 1972 *Myrtea* sp.: OKUTANI, *Bull. Tokai Reg. Fish. Res. Lab.*, (72), p. 118.

Material. A specimen taken alive from St. 20 (34°37.4'N, 138°58.8'E–34°37.2'N, 138°58.9'E, 111–123 m; November 10, 1981; Holotype NSMT-Mo 60042). A conjoined valves from St. 22, 6 left valves and 9 right valves from Sts. 17, 18, 19, 20, 21 and 22 (Paratype series NSMT-Mo 60043 to 60048 and 60182).

Description. Shell ovate in outline, equivalence and inequilateral, white externally. Surface ornamented with weak, rather regularly spaced, crowded growth lines some of which develop into impressed or stepped concentric lines, crossing with extremely weak, very crowded radial thread, which easily faded in aged specimens or dead shell. Beak subcentral, slightly posteriorly situated, weakly prosocline. Lunule narrow, demarcated by low ridges. Escutcheon occupied by external ligament. Dorso-anterior margin almost straight, continuous to roundly protruded anterior margin, further to smoothly round ventral margin. Dorso-posterior margin slanting, continuous to weakly truncated posterior margin meeting with ventral margin in a blunt angle.

Hinge plate moderately strong and gently curved, concave anteriorly and convex posteriorly, basically of lucinoid-type. Right valve with somewhat elongated, hemi-elliptical



Text-fig. 2. Cardinal structure of *Wallucina izuensis* n. sp.

anterior lateral tooth (AI) underneath the lamellae which develop into a triangular tooth (AIII) in front of a slightly bifurcated central cardinal tooth (3) and posterior lateral tooth (PI) above which the ligament lies. Left valve with anterior lateral tooth (AII) with an elongate socket (AI') followed by a large triangular central tooth (2), a small posterior cardinal tooth (4), and posterior lateral tooth (PII) with an elongated groove (PI').

Interior surface weakly shining. Anterior adductor muscle scar elongate, crescent in shape. Posterior adductor muscle oval. Mantle scar entire without sinus. Ventral margin smooth.

Measurement.

Holotype specimen: Length 15.5 mm, height 13.3 mm, breadth 7.0 mm. The largest specimen (Paratype, NSMT-Mo 60047, right odd valve): Length 21.4 mm, height 18.6 mm, breadth 6.0 mm.

Remarks. Only a single living specimen is available here. The radial threads are very crowded but are so thin that this character is easily lost in dead specimens which usually present only concentric sculpture except anteriormost and posteriormost portions where radial threads usually remained. Only *Wallucina* known to Japan has been *W. lamyi* (CHAVAN, 1938) which differs from the present new species in having deeper shell with more distinct sculptures. "*Lucina (Loripes)*" *jacksoniensis* SMITH, 1888 from New South Wales is somewhat similar in outline and sculpture, but has short posterior lateral and remarkably oblique cardinal teeth.

This species ranges from the Pleistocene to Recent. A single left valve collected from the Pleistocene Ryukyu Limestone in Kikaijima, Kagoshima Prefecture is stored in the molluscan collections of Department of Geology, National Science Museum (NSM-PM 15109).

Distribution. Southeastern tip of Izu Peninsula, 60–120 m deep, coarse sand; Hyotanse and Takase, 115–230 m (OKUTANI, 1972).

Family Glossidae

Meiocardia moltkiana (SPENGLER, 1783)

(Pl. 10, fig. 5)

1783 *Chama moltkiana* SPENGLER, Schr. Berlin Ges. Naturf., 4, p. 321, pl. 14, figs. 1–4 (*vide* LAMY, 1920).

1845 *Isocardia moltkiana*: REEVE, Conch. Icon., vol. 8, *Isocardia*, pl. 1, fig. 1.

1850 *Isocardia moltkiana*: ADAMS & REEVE, Zool. Voy. Samarang, Moll., p. 77, pl. 22, fig. 3.

- 1882 *Isocardia moltkiana* var. *sanguineomaculata* DUNKER, Ind. Moll. Mar. Japon., p. 213.
 1971 *Meiocardia moltkiana*: KURODA *et al.*, Sea Shells of Sagami Bay, p. 614 (Jap.), p. 395 (Eng.), pl. 87, fig. 11.

Locality. St. 27 (91–87 m, alive).

Remarks. Distribution of this species is said to be Indonesia to Boso Peninsula, Honshu. The following material is stored in the National Science Museum: Tomioka, Amakusa (NSMT-Mo 43436 & 43455); Okinoshima, Kochi Prefecture (Mo 42307); Chichijima, Bonin Islands (Mo 59790).

The separation of “subspecies” *sanguineomaculata* seems to be hardly accepted by modern scholars after many specimens from the Philippines and South China Sea regions became popularly available proving that the geographical isolation of the population may not exist.

Family Verticordiidae

Verticordia (Spinosipella) deshayesiana FISCHER, 1862

(Pl. 10, fig. 4)

- 1862 *Verticordia deshayesiana* FISCHER, *J. Conchyl.*, 10, p. 35, pl. 5, figs. 10–11.
 1862 *Verticordia japonica* ADAMS, *Ann. Mag. Nat. Hist.*, Ser. 3, 9, p. 224.
 1952 *Verticordia (Spinosipella) japonica*: KURODA, *Venus*, 17, pp. 10–11, pl. 1, figs. 10–11.
 1971 *Spinosipella deshayesiana*: KURODA *et al.*, Sea Shells of Sagami Bay, p. 731 (Jap.), p. 482 (Eng.), pl. 103, fig. 26.
 1972 *Spinosipella deshayesiana*: OKUTANI, *Bull. Tokai Reg. Fish. Res. Lab.*, (72), p. 125.
 1977 *Verticordia (Spinosipella) deshayesiana*: HABE, *Syst. of Moll. Japan*, pp. 315, 316, pl. 67, fig. 1.

Locality. St. 11 (31 m, empty shell).

Remarks. Although KURODA *et al.* (1971) noted that distribution of this species is Indonesia to Boso Peninsula, Honshu, as northern limit, material stored in the National Science Museum includes specimens from Phuket, Thailand (NSMT-Mo 60067), Oahu, Hawaii (Mo 58109), Miyako Island, Okinawa Prefecture (Mo 50616) and Suruga Bay (Mo 50344 & 50360) proving that this species widely ranges from the West to the Central Pacific.

Family Poromyidae

Cetoconcha japonica HABE, 1952

(Pl. 10, fig. 6)

- 1952 *Cetoconcha japonica* HABE, Ill. Cat. Japan. Shells, 1(21), p. 159, pl. 22, figs. 2–4.
 1964 *Cetoconcha japonica*: HABE, Shells West. Pac. Col., vol. 2, p. 212, pl. 65, fig. 4.
 1965 *Cetoconcha japonica*: HABE & ITO, Shells of World Col., vol. 1, p. 161, pl. 55, fig. 10.
 1971 *Cetoconcha japonica*: KURODA *et al.*, Sea Shells of Sagami Bay, p. 733 (Jap.), p. 484 (Eng.), pl. 103, fig. 24.

Locality. St. 18 (68–60 m, alive); St. 19 (110–95 m, conjoined empty shells); St. 21 (112–120 m, alive).

Remarks. HABE (1977) noted that this species distributes Shikoku to Hokkaido at depths

between 200 and 650 m. The present samples were collected alive from slightly shallower water, at depths of 60–120 m. All the present material is juvenile and has very thin, translucent shell with minute granules on the outer surface and lacks velvety periostracum which is seen in adult specimen. The following material is stored in the National Science Museum: the Sea of Enshu-Nada (NSMT-Mo 50604 & 51930); off Choshi, Honshu (Mo 55427); off Sanriku, Pacific coast of northern Honshu (Mo 50597).

Although INABA and OYAMA (1977) noted that the specimen figured by HABA (1964) and HABA & ITO (1965) is holotype, the material (NSMT-Mo 50597) is an adult specimen with thick velvety periostracum and differs from the holotype which is juvenile specimen collected from off Kinkazan, Miyagi Prefecture. The holotype specimen is said to be stored in Saito Ho-on Kai Museum, Sendai City (registration no. 15968).

要 約

昭和 56 年 10～11 月、伊豆半島南東岸付近からドレッジによって得られた貝類の中から興味ある 21 種を選んで報告する。

ヒカリシタダミ *Microgaza fulgens* : 原記載は五島沖であるが相模湾及びその周辺の 50—100 m 付近に普通、通常ヤガスリシタダミ *M. ziczac* と同所的分布をする。

ニヨリエビスガイ *Tristichotrochus problematicus* : 黒田他 (1971) により相模湾東部海域から報告された種。

キシウベッコウタマガイ *Lamellaria küiensis* : 死殻 1 個であるが、本邦既知のベッコウタマガイ類中、相模湾に分布するのは本種のみのものである。

ヒナノカムリボラ *Murexsul cirrosus* : 本材料中最も多いアッキガイ科の種であるが、色彩変異に富むばかりでなく、螺肋が殆ど鱗片状とならない標本まである。

クロスデトクサバイ *Phos nigrolineatus* : 採集された標本はいずれも未成殻であるが、コトクサバイ *P. varicosus* に比べ螺塔は高く褐色螺条が極めて明瞭である。コトクサバイも同所的分布をする。

ムギヨフバイ *Cyllene pulchella* : 熱帯太平洋種で、従来、相模湾からは知られていなかった。

ヒダトリヨフバイ *Zeuxis subtranslucidus* : 波部 (1961) によって *Z. hayashii* の名で遠州灘から記載されたが、インド洋から熱帯西太平洋に広く分布する種であることが明らかとなった。

ナガイモフデガイ *Pterygia japonica* n. sp. : 吉良 (1959) は本種を喜界島化石から記載された *P. elongata* にあてていたが、本材料から発見された 1 標本と天草半島から採集された 1 標本とを研究の結果、別種と認められ新種として記載した。

コビトオトメ *Microvoluta hondana* : 横山 (1922) により武蔵野層上部から記載された化石種の現生標本である。所属はもとフデガイ科におかれていたがフデヒタチオビガイ科に移される。

ミウライモガイ *Parviconus tuberculosus* : 4 地点からこの小型イモガイ類が採集され、下田沖 60～120 m 付近には普通であることが判った。

カンダイトカケガイ *Epitonium kandai* : エドイトカケガイに似るが、縦肋肩部が僅かに突出し後方に反る点で異なっている。

ウスムラサキクレハガイ *Papyriscala tenuilirata* : 波部 (1961) が遠州灘からチャイロクレハガイ *P. castanea* として記載した貝であるが、相模湾にも分布する。

チデミナワメグルマ *Claraxis aspersus* : 小型のクルマガイで、稀にしか採集されておらず、本材料中も 2 個の死殻が発見されたにすぎない。

ミタマキガイ *Glycymeris imperialis* : 概形ベニグリガイ *G. rotunda* に似ているが本種とベニグリガイで

は水深、底質、随伴群集が全く異なる。学名は *G. albolineata* をあてるべきだという意見もあるが、後者は点刻が顕著で、殻皮毛条が密で、且つ閉殻筋痕が縞状となる点において本種とは異なる。

ユキゾラホトトギスガイ *Amygdalum soyoae* : 陸棚帯上部の砂底に棲み、深海性の近縁種ヌリツヤホトトギスガイ *A. watsoni* と棲息深度を著るしく異にする。

シロチョウウグイスガイ *Pterelectroma zebra* : PRASHAD (1932) が *tomlini* という別種を創設したが、本採集品中には両型が出現し、色彩模様のみでは2種に分けることは出来ないことが明らかである。

ワタゾコツキガイ *Notomyrtea soyoae* : 原記載での分布は九州西方から日本海西部の範囲であったが、太平洋沿岸は相模湾まで知られる。

ウツギノハナガイ (新称) *Wallucina izuensis* n. sp. : 本属にはこれまで日本近海からはチヂミウメノハナガイ (ナシノハナガイ) *W. lamyi* しか知られていなかったが、本種は前域が比較的長いこと、殻表には成長輪脈のほか、微細な放射状彫刻のある点で異なる。

カノコシボリコウホネガイ *Meiocardia moltkiana* : 熱帯西太平洋に汎く分布する種でフィリピン型を *sanguineomaculata* として区別されているが、多くの標本を見るとその区別はむずかしい。

ウズマキゴコロガイ *Verticordia deshayesiana* : 本種は熱帯西太平洋ばかりでなく、中央太平洋 (ハワイ) にまで分布する。

ダイオウスナメガイ *Cetoconcha japonica* : 本種の幼若個体と見られるが、殻は甚だ薄く、概形も成体と幾分異なるので、別種の可能性もある。

References

- ADAMS, A., & L.A. REEVE, 1850. Mollusca. *Zool. Voy. H.M.S. Samarang*, 1843–1846. 87 pp., 24 pls. England.
- AZUMA, M., 1960. Studies on the radulae of Japanese cone shells (1). *Hyogo Biology*, 4: 62–63. (In Japanese.)
- CERNOHORSKY, W.O., 1978. Tropical Pacific Marine Shells. 352 pp., Pacific Publications, Sydney & New York.
- CERNOHORSKY, W.O., 1980. The taxonomy of some Indo-Pacific Mollusca. *Rec. Auckland Inst. Mus.*, 16: 171–187.
- COTTON, B.C., 1944. A catalogue of the cone shells (Conidae) in the south Australian Museum. *Rec. S. Aust. Mus.*, 8: 229–280, pls. 1–5.
- DALL, W.H., 1907. Descriptions of new species of shells, chiefly Buccinidae, from the dredging of the U.S.S. “Albatross” during 1906, in the Northwestern Pacific, Bering, Okhotsk and Japanese seas. *Smiths. misc. Coll.*, 50: 139–173.
- HABE, T., 1944. Two new species of the genus *Lamellaria*. *Kairuigaku Zasshi (J. Malac. Soc. Jap.)*, 13: 201–203. (In Japanese.)
- HABE, T., 1951. Genera of Japanese Shells, Pelecypoda (1). 96 pp., 192 figs. Kyoto, Japan.
- HABE, T., 1958. The fauna of Akkeshi Bay XXV. Gastropoda. *Publ. Akkeshi mar. biol. Sta.*, 8: 1–39, pls. 1–5.
- HABE, T., 1961. Colored Illustrations of the Shells of Japan (II). 183 pp. + 42 app. pp., 66 pls. Hoikusha, Osaka. (In Japanese.)
- HABE, T., 1964. Shells of the Western Pacific in Color, vol. 2, 233 pp., 66 pls. Hoikusha, Osaka.
- HABE, T., & K. ITO, 1965. Shells of the World in Color, vol. 1. The Northern Pacific. 176 pp., 56 pls. Hoikusha, Osaka. (In Japanese.)
- HIRASE, Y., 1908. Summary—On Japanese marine Mollusca (23), with the description of a new fossil of *Cylindra* from Kikai-ga-shima. *Conch. Mag.*, 2 (11): 64–67.
- HORIKOSHI, M., 1952. Note on the molluscan fauna of Sagami Bay and its adjacent waters. *Sci. Rep. Yokohama Nat. Univ.*, Sec. 2, (6): 37–64, pl. 11.
- INABA, T., & K. OYAMA, (ed.) 1977. Catalogue of Molluscan Taxa Described by Tadashige HABE during

- 1939–1975, with Illustrations of Hitherto Unfigured Species. 185 pp., 7 pls. Okinaebisuno-Kai, Kashiwa.
- KIRA, T., 1959. Colored Illustrations of the Shells of Japan. Enl. & rev. ed., 239 pp., 72 pls. Hoikusha, Osaka. (In Japanese.)
- KURODA, T., 1956. On the Japanese species of *Conus* (2). *Jap. J. Malac.*, 19: 73–91.
- KURODA, T., T. HABE & K. OYAMA, 1971. Sea Shells of Sagami Bay, collected by His Majesty the Emperor of Japan. 741 (Jap.)+489 (Eng.) pp., 121 pls. Maruzen, Tokyo.
- LISCHKE, C.E., 1872. Diagnosen neuer Meeres-Conchylien von Japan. *Malakozool. Blätt.*, 19: 100–109.
- LISCHKE, C.E., 1874. Japanische Meeres-Conchylien. Vol. 3, 123 pp., 9 pls. Cassel.
- OKUTANI, T., 1972. Molluscan fauna on the submarine banks, Zenisu, Hyotanse, and Takase, near the Izu-Shichito Islands. *Bull. Tokai reg. fish. Res. Lab.*, (72): 63–142, 2 pls.
- OYAMA, K., 1973. Revision of Matajiro YOKOYAMA's type Mollusca from the Tertiary and Quaternary of the Kanto Area. *Spec. Pap. palaeont. Soc. Jap.*, (17), 148 pp., 57 pls.
- PRASHAD, B., 1932. The Lamellibranchia of the Siboga Expedition. Syst. part 2, Pelecypoda (exclusive of the Pectinidae). *Monogr. Res. Exp. Siboga*, 53c, 353 pp., 9 pls.
- RADWIN, G.E., & A. D'ATTILIO, 1976. Murex Shells of the World. 284 pp., 32 pls. Stanford Univ. Press, Stanford.
- SCHIEPMAN, M.M., 1908–1913. The Prosobranchia of the Siboga Expedition, parts 1–5. *Monogr. Res. Exp. Siboga*, 49, 452 pp., 30 pls.
- TAKI, I., 1937. Zur Morphologie und systematischen Stellung von *Conus tuberculatus* TOMLIN. *Zool. Mag.* (Tokyo), 49: 218–230, 4 pls.
- TAKI, I., & K. OYAMA, 1954. Matajiro YOKOYAMA's the Pliocene and Later Faunas from the Kwanto Region in Japan. *Spec. Pap. palaeont. Soc. Japan*, (2), 68 pp., 49 pls.
- THIELE, J., 1929–1935. Handbuch der systematischen Weichtierkunde. Parts 1–4. 1154 pp. Jena.
- YOKOYAMA, M., 1922. Fossils from the Upper Musashino of Kazusa and Shimosa. *J. Coll. Sci. imp. Univ. Tokyo*, 44: 1–200, 17 pls.

Explanations of Plates 9–10

Plate 9

- Fig. 1. *Microgaza fulgens* DALL, 1907. NSMT-Mo 60053. St. 18. Diameter 10.3 mm.
 Fig. 2. *Tristichotrochus problematicus* KURODA & HABE, 1971. NSMT-Mo 60054. St. 18. Length 15.5 mm.
 Fig. 3. *Lamellaria kiiensis* HABE, 1944. NSMT-Mo 60055. St. 3. Diameter 8.3 mm.
 Fig. 4. *Phos nigroliratus* HABE, 1961. NSMT-Mo 60069. St. 4. Length 12.4 mm.
 Fig. 5. *Murexsul cirrosus* (HINDS, 1843). NSMT-Mo 60057. St. 23. Length 14.3 mm.
 Fig. 6. *Murexsul cirrosus* (HINDS, 1843). NSMT-Mo 60058. St. 11. Length 14.6 mm.
 Fig. 7. *Papyriscala tenuilirata* (SOWERBY, 1874). NSMT-Mo 60059. St. 12. Length 10.6 mm.
 Fig. 8. *Epitonium kandai* KURODA & AZUMA, 1961. NSMT-Mo 60060. St. 14. Length 11.2 mm.
 Fig. 9. *Claraxis aspersus* (HINDS, 1844). NSMT-Mo 60061. St. 14. Diameter 11.2 mm.
 Fig. 10. *Microvoluta hondana* (YOKOYAMA, 1922). NSMT-Mo 60062. St. 24. Length 11.5 mm.
 Fig. 11. *Cyllene pulchella* ADAMS & REEVE, 1850. NSMT-Mo 60063. St. 29. Length 14.3 mm.
 Fig. 12. *Zeuxis subtranslucidus* (SMITH, 1903). NSMT-Mo 60064. St. 18. Length 11.4 mm.
 Fig. 13. *Pterygia japonica* OKUTANI & MATSUKUMA, n. sp. NSMT-Mo 60034 (holotype). Ushibuka, Amakusa, Kumamoto Prefecture. Length 22.1 mm.
 Fig. 14. *Pterygia japonica* OKUTANI & MATSUKUMA, n. sp. NSMT-Mo 60035 (paratype). St. 14. Length 18.2 mm.
 Fig. 15. *Parviconus tuberculosus* (TOMLIN, 1937). NSMT-Mo 60065. St. 21. Length 13.6 mm.
 Fig. 16. *Parviconus tuberculosus* (TOMLIN, 1937). NSMT-Mo 60066. St. 20. Length 17.6 mm.

Plate 10

- Fig. 1. *Amygdalum soyoae* HABE, 1958. NSMT-Mo 60068. St. 21. Length 16.6 mm.
 Fig. 2. *Glycymeris imperialis* KURODA, 1934. NSMT-Mo 60038. St. 9. Length 14.4 mm.
 Fig. 3. *Myrtea* (*Notomyrtea*) *soyoae* (HABE, 1953). NSMT-Mo 60039. St. 7. Length 6.4 mm.
 Fig. 4. *Verticordia* (*Spinospella*) *deshayesiana* FISCHER, 1862. NSMT-Mo 60037. St. 11. Length 8.1 mm.
 Fig. 5. *Meiocardia moltkiana* (SPENGLER, 1783). NSMT-Mo 60040. St. 27. Length 15.3 mm.
 Fig. 6. *Cetoconcha japonica* HABE, 1952. NSMT-Mo 60041. St. 18. Length 15.0 mm.
 Fig. 7. *Wallucina izuensis* OKUTANI & MATSUKUMA, n. sp. NSMT-Mo 60043 (paratype). St. 22. Length 9.6 mm.
 Fig. 8. *Wallucina izuensis* OKUTANI & MATSUKUMA, n. sp. NSMT-Mo 60042 (holotype). St. 20. Length 15.5 mm.
 Fig. 9. *Pterelectroma zebra* (REEVE, 1857). NSMT-Mo 60049. St. 15. Length 8.0 mm.
 Fig. 10. *Pterelectroma zebra* (REEVE, 1857). NSMT-Mo 60050. St. 15. Length 15.1 mm.
 Fig. 11. *Pterelectroma zebra* (REEVE, 1857). NSMT-Mo 60051. St. 15. Length 20.0 mm.

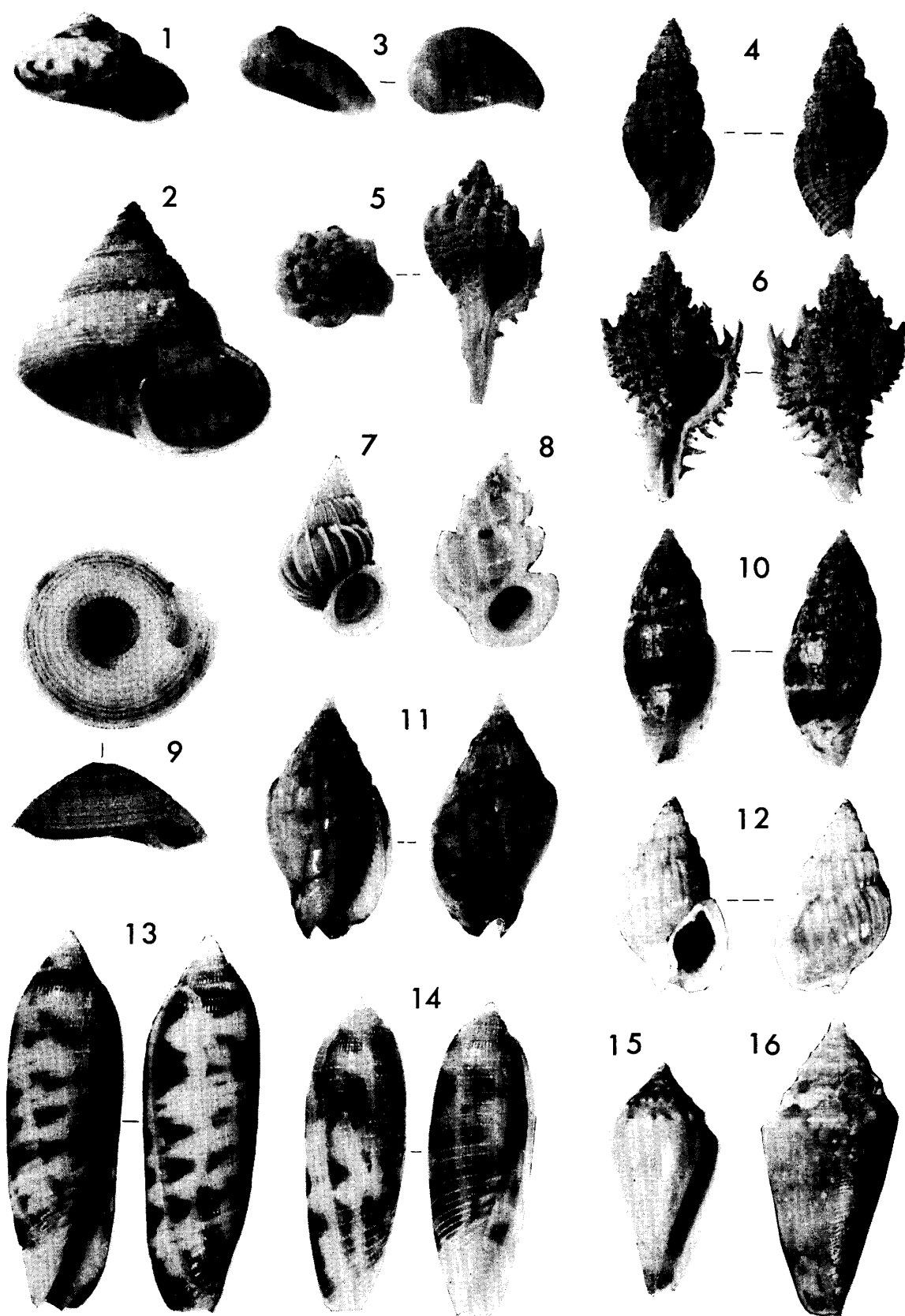


Plate 10

OKUTANI & MATSUKUMA: Interesting Mollusks from Izu Peninsula

